

WHAT IS CLAIMED IS:

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1. An exposure apparatus having an illuminating optics unit for irradiating a reticle, on which a predetermined pattern has been formed, with exposing light emitted from an exposing light source, a reticle stage on which the reticle is placed, a projection optics unit for projecting the predetermined pattern of the reticle onto a substrate, and a substrate stage on which the substrate is placed, said apparatus comprising:

10 at least one chamber for internally accommodating the illuminating optics unit, the reticle stage, the projection optics unit and the substrate stage;

first pressure control means for making pressure inside the chamber higher than pressure outside the chamber; and

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first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the chamber.

20 2. The apparatus according to claim 1, wherein the reticle is irradiated with exposing light, which has been emitted by the exposing light source, via the illuminating optics unit, the predetermined pattern that has been formed on the reticle is projected onto the substrate via the projection optics unit to expose the

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substrate to the pattern, and the exposing light has an optical path the entirety of which is sealed within at least one chamber, said apparatus further comprising:

second pressure control means for making pressure  
5 inside this chamber higher than pressure outside this chamber; and

second correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside this chamber.  
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3. The apparatus according to claim 1, wherein the interior of said chamber is filled with inert gas.

4. The apparatus according to claim 3, wherein the  
15 inert gas is nitrogen gas or helium gas or a mixed gas of nitrogen gas and helium gas.

5. The apparatus according to claim 1, wherein control is performed in such a manner that pressure inside said  
20 chamber is made higher, by a fixed amount, than pressure outside the chamber

6. The apparatus according to claim 1, wherein pressure inside said chamber is constant.  
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7. The apparatus according to claim 1, further comprising a first pressure sensor for sensing the value of pressure inside said chamber and a second pressure sensor for sensing value of pressure outside said  
5 chamber.

8. The apparatus according to claim 1, wherein said first correction means estimates amount of change in optical characteristics of said projection optics unit  
10 based upon index of refraction, which varies in accordance with the value of pressure inside said chamber, and corrects the optical characteristics of said projection optics unit based upon the estimated amount of change in optical characteristics of said  
15 projection optics unit.

9. The apparatus according to claim 1, further comprising a substrate load-lock chamber in the vicinity of said substrate stage and a reticle load-lock chamber  
20 in the vicinity of said reticle stage.

10. The apparatus according to claim 1, wherein said illuminating optics unit, said reticle stage, said projection optics unit and said substrate stage are  
25 accommodated in respective ones of separate chambers.

11. The apparatus according to claim 1, wherein said  
illuminating optics unit, said reticle stage, said  
projection optics unit and said substrate stage are  
5 accommodated in at least two separate chambers.

12. A method of manufacturing a semiconductor device,  
comprising the steps of:

placing a group of manufacturing equipment for  
10 various processes, inclusive of the exposure apparatus  
having an illuminating optics unit for irradiating a  
reticle, on which a predetermined pattern has been  
formed, with exposing light emitted from an exposing  
light source, a reticle stage on which the reticle is  
15 placed, a projection optics unit for projecting the  
predetermined pattern of the reticle onto a substrate,  
and a substrate stage on which the substrate is placed,  
said apparatus comprising:

at least one chamber for internally accommodating  
20 the illuminating optics unit, the reticle stage, the  
projection optics unit and the substrate stage;

first pressure control means for making pressure  
inside the chamber higher than pressure outside the  
chamber; and

25 first correction means for correcting optical

characteristics of the projection optics unit in accordance with a value of pressure inside the chamber, in a plant for manufacturing semiconductor devices; and

manufacturing a semiconductor device by a plurality  
5 of processes using this group of manufacturing equipment.

13. The method according to claim 12, further comprising:

10 interconnecting the manufacturing equipment by a local-area network; and

communicating, by data communication, information relating to at least one piece of manufacturing equipment in said group thereof between the local-area  
15 network and an external network outside said plant.

14. The method according to claim 13, wherein maintenance information for said manufacturing equipment is obtained by accessing, by data communication via the  
20 external network, a database provided by a vendor of said manufacturing equipment or by a user, or production management is performed by data communication with a plant other than said first-mentioned plant via the external network.

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15. A plant for manufacturing a semiconductor device, comprising:

a group of manufacturing equipment for various processes, inclusive of the exposure apparatus having an illuminating optics unit for irradiating a reticle, on which a predetermined pattern has been formed, with exposing light emitted from an exposing light source, a reticle stage on which the reticle is placed, a projection optics unit for projecting the predetermined pattern of the reticle onto a substrate, and a substrate stage on which the substrate is placed, said apparatus comprising:

at least one chamber for internally accommodating the illuminating optics unit, the reticle stage, the projection optics unit and the substrate stage;

first pressure control means for making pressure inside the chamber higher than pressure outside the chamber; and

first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the chamber;

a local-area network for interconnecting the group of manufacturing equipment; and

a gateway for making it possible to access, from said local-area network, an external network outside the

plant;

whereby information relating to at least one of the pieces of manufacturing equipment can be communicated by data communication.

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